



2	Turnkey Solutions Hot Water, Steam and Solar Systems



Ecotherm is the leading brand for turnkey hot water, steam and solar systems for hotels, hospitals and the industry.

Ecotherm amazes with "Individual Heat Transfer Solutions" for hot water and steam generation.

Individuality

Ecotherm develops extensive turnkey systems as well as separate components. Each plant is specifically aligned to the customer's individual requirements. The base is our own production facility in Austria and a wide product portfolio, which enables the combination of all relevant energy sources such as oil, gas, electricity and renewable energies.

Premium quality

All products are made of high-class duplex stainless steel and guarantee a long-life cycle and perfect hygiene. Ecotherm is certified to ISO 9001 : 2015 with all European standards. Our own test bench assures highest quality and reliability.

Innovation

We are always open to new ideas, we constantly investigate new technologies and we develop path-breaking and future-oriented products. Many patents are the result of the in-house innovation management. With an elaborated 3D visualization, Ecotherm systems can be guided and controlled at all times.

Premium service

Clients benefit from our extensive service at consulting, planning, engineering, supervision and training. Ecotherm regularly improves the know-how of its partners and clients with selective trainings.

Efficiency

The Ecotherm Group, managed by the owner, has slim decision-making structures. Consequent research and development work permanently optimize the energy efficiency and the durability of the products. Ecotherm turnkey solutions offer an optimal cost-benefit ratio.

Experience

With over thousand installations in the last decade in Europe, the Middle East, Asia, North Africa and Central America, Ecotherm has become the leading brand in technology and innovation for individual hot water, steam and solar solutions. The Ecotherm team is continuously refreshing their know-how with exceptional trainings and seminars that the Ecotherm Academy provides.

Reliability

Ecotherm systems are monitored all around the clock and can be serviced at low cost, quickly and efficiently with an advanced control panel. Our self-designed plants have low maintenance requirements and are totally dependable.

Sustainability

Ecotherm products help our customers save energy and money. We save valuable resources by using renewable energies. Ecotherm high-performance plants have minimal space requirements and provide maximum energy savings. When planning new products, Ecotherm engineers take all the qualitative and economic principles into account in accordance with the ecological principles.

Partnership

We live in a partnership with all our customers, suppliers and employees. This relationship is characterized by honesty, commitment, openness, trust and reliability. The object is a joint long-term success.

Internationality

The international alignment of Ecotherm with branches in Dubai, Kuwait, Mexico, Hungary and India and further partners in more than 25 countries is the base for our flexible and efficient project implementation.

ECOTHERM Turnkey Hot Water, Steam and Solar Solutions





Individual Solutions	4 - 5
Phase 1: Design & Pre-Production	6 - 7
Phase 2: Production	8 - 9
Phase 3: Post-Production	10 - 11
Scope of Services:	12 - 21
3D-CAD/Design Software Table for Sizing	
 Software Tools for Sizing Calculations 	
Visualization & Animated Movies	
 Specifications & Presentations 	
Laser & Water Jet Cut Plates & Pipes	
WeldingProject Management	



- In-House Test Bench • Pickling
 - Insulation
 - (Pre-) Piping
 - (Pre-) Assembling
 - (Pre-) Wiring
 - Testing • Transport

 - Installation, Supervision, Commissioning
 - Training
 - Documentation
 - Maintenance & Parts Warranty
 - Control Panel and Visualization



Further Advantages

- All components from one supplier
- Premium quality
- Possibility of telemaintenance
- Know-how
 - Certified products
 - Experience



Selected References

- Sheikh Jaber Al-Ahmad Al-Jaber Al-Sabah Hospital Kuwait
- King Saud bin Abdulaziz University for Health Science Riyadh
- Grosvenor House Hotel Dubai
- Sheraton Hotel Hong Kong
- Further References

22 - 24

25 - 31

Individual Solutions

al turnkey solution. All components are return on investment of your money. key solution.

According to the project specifications, perfectly coordinated with each other. More than 1,000 installed systems in the ECOTHERM engineerings choose This ensures the maximum efficiency of the last decade ensure the right knowthe suitable products for your individu- the system and therefore the maximum how to design you perfect indiidual turn-





Phase 1: Design & Pre-Production

ECOTHERM turnkey systems are complex and individual. On the one hand a lot of different components have to be used. All these components need to be optimally coordinated with each other to ensure functionality and perfect efficiency right from day one. On the other hand steam systems operate with high pressures. Thus a failure can really be very dangerous for the staff operating the system as well as for the complete building. Therefore ECOTHERM offers complete individual turnkey solutions. The services range from design, 3D visualization, project management, over manufacture, pre-assembly, pre-wiring and testing to shipping, commissioning, supervision and maintenance. Experienced ECOTHERM engineers ensure that your system operates stable, save, reaches the desired output and they train your staff how to monitor and control the most important parameters of the system. Premium quality of the products and premium service during the whole project is the minimum you should claim for your individual steam system. Find the products and services included in an ECOTHERM turnkey system on the following pages.



Calculations

With decades of experience in plant ECOTHERM has a pool of experience, construction and calculation tools. Details on page 13.



Visualization / Compositing

Already in the planning phase are possible Photo-realistic images of our turnkey solution. Details on page 14.



Animated Movies

We invite already in the design stage to a virtual tour of your future plant room. Details on page 14.



Specifications & Presentations

We present our turnkey solutions to you and we answer to all your questions. Details on page 14.



Phase 2: Production

The shell plates of stainless steel ECO-THERM storage tanks and many other stainless steel components are laser cutted and laser welded. A welding robot is used specially for tube bundle exchanger. In the production of large raised heat exchangers single tubes are connected with an automatic orbital welding tool. These are some examples of the modern manufacturing methods at ECOTHERM, which is the basis for the high quality of the final products.



ECOTHERM produce the sheet metal blanks with the latest CNC controlled laser and punching machines. Details on page 15.



Welding

TÜV-tested welding process through state-of-theart robotics and experienced certified employees. Details on page 15.





Project Management

Accurate project management and scheduling for optimal timing. Details on page 16.



Details on page 16.



In-House Test Bench

the surface treatment and assembly.

The individual components are tested before

Pickling

Immersion pickling of ECOTHERM stainless steel products in the production facility at the headquarters in Austria. Details on page 17.





Insulation

ECOTHERM's own developed fibre fleece insulation which is 100 % renewable. Details on page 17.



Phase 3: Post-Production

For the manufacturing of ECOTHERM products primarily high-quality stainless steel is used. The quality of the material is one of the most important parameters for a premium product. But premium quality also refers to the quality of planning, the quality of the production and quality in project management. The self-developed quality management system according to ISO 9001: 2015 and the continuous training of the employees ensures the consistently high quality.



Installation

Our experienced staff provide the facility at their destination back together and connect them to the existing building services.

Supervision

There are pre-assembled all turnkey installations in the ECO-THERM factory.

Commissioning

Our experienced staff take our plants in operation worldwide.

Training

The customer is involved by our experienced staff at the plant site.

Documentation

All documents and planning documents in the form of hard copy and on disk are supplied.

Maintenance

After commissioning, maintenance is carried out by our employees.

Visualization

Sophisticated visualization solutions in 2D and 3D.



Scope of Services

Supplying an individual turnkey solution, ECOTHERM provides a huge range of services ranging from design, 3D visualization, project management, over manufacture, pre-assembly, pre-wiring and testing to shipping, commissioning, supervision and maintenance. Experienced ECOTHERM engineers ensure that your system operates stable, save, reaches the desired output and they train your staff how to monitor and control the most important parameters of the system. Premium quality of the products and premium service during the whole project is the minimum you should claim for your individual steam system.

3D-CAD / Design



For all individual ECOTHERM turnkey systems a detailled 3D visualization is already created in design stage. Usually 80 to 90 percent of all details are included in the design. This ensures that the final system meets the project's budget, is manufactured and delivered in time and that the desired performance of the system can be reached for sure.

Moreover the CAD data from the design are the basis for the start of the operations scheduling. Due to the saved parameters e. g. also the bill of lading is created.

ECOSIZE Software Tools for Sizing

ECOTHERM's leading edge technology is based on solid foundations. Thanks to decades of experience gained from thousands of high capacity water heater installations, ECOTHERM has created unique design databases using modelling software based on actual installations and over 65,000 performance measurements taken on their purpose built testing. The software ECOSIZE individually designs your system according to these data. It is used by all ECO-THERM franchisees worldwide.



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Calculations



ECOTHERM calculates and dimensiones the turnkey installation according to their economy. Since everything is from one-stop, the components are perfectly matched.

Visualization & Animated Movies



ECOTHERM already presented in the planning phase photo-realistic images of the individual turnkey solution. For existing plant rooms composings are possible, where the 3D system is virtually placed in the room.

3D animations can be created, which provide to walk virtually through the plant room before production. Further there are also shading animations at solar or photovoltaic projects possible.

Specifications & Presentations



- Previously presentation and training Ready for know-how transfer
- Partnership
- Convince investor, planner, consultant, architect and/or contractor that a high-quality solution always pays off
- Ready to generate technical specifications and hand-over

Laser & Water Jet Cut Plates & Pipes



ECOTHERM cuts steel plates and pipe cutouts with latest laser or water jet technology. This ensures precise, free from burrs and thermally unstressed steel plates and pipe cutouts, which are plugged on or in high quality ECO-THERM products.

Welding

At ECOTHERM precision is even by welding a big issue. Whether by hand by certified welders or by latest robotics, our products are welded with the use of forming gas.



Project Management



ECOTHERM orders are scheduled, managed and controlled from planning up to delivery by the internal project management. From order placement to commissioning on site nothing is left to chance.

In-House Test Bench

According to its own innovation management system, ECOTHERM is permanently working on new innovative ideas. The basis for the success of this innovation management system is the production facility in Austria, which is also equipped with a In-house testing lab. New ECOTHERM products are tested according to the highest European standards. Furthermore components from selected suppliers are also tested in detail before they may become part of an ECOTHERM turnkey solution.

Together with the design department the innovative and technologically leading ECOTHERM products are optimally coordinated with other components in order to build a perfect turnkey steam system, which operates stable, safe and efficient from day one.





Pickling





In recent years ECOTHERM has expanded and restructured the pickling plant at its headquarters in Austria. There are three bathes with 1,000, 3,000 and 13,000 litres of stain for immersion pickling of stainless steel storage tanks and other stainless steel products. A new ventilation system has improved the working environment sustainably. The waste water is purified through a neutralizing system and is thus safe for the environment. Stainless steel tanks can be passivated up to a volume of 20,000 litres and a diameter of 2 metres.

Environmental safety

"Sustainability" is one of the key values of ECOTHERM. Thus ECOTHERM has placed high priority on environmental sustainability in the development of the pickling plant.

Insulation

ECOTHERM offers unequalled value for money with an own developed fibre-fleece insulation solution. Compared to standard foam insulations the ECOTHERM insulating polyester fibre-fleece reduces the heat loss in the standby mode for up to 30 percent. This material is produced from recycled PET bottles with no chemical additives and is itself 100% recyclable. The insulation is flame retardant according to DIN 4102-1 class B2, and is available upon request in B1. The robust outer PP cover is food safe, can easily be transported and is extremely impact resistant.

Insulation Solutions

Details in Brochure <u>7</u> Insulation Solutions





(Pre-)Piping

Small systems are delivered including pre-piping as a standard. For larger turnkey systems ECOTHERM offers the option to individually manufacture all necessary pipes, to pre-assemble and test the complete system including the piping in the production facility in Austria and then to ship the piping in units which can easily be mounted at construction site. The complete piping is 3D visualized with CAD design prior to manufacture. The welding is done accordining to ISO 3834-2 : 2005 certification.



(Pre-)Assembling



All turnkey installations get pre-assembled by our experienced employees in the ECOTHERM production facility before delivery.

(Pre-)Wiring



ECOTHERM Turnkey systems meet highest quality demands. Therefore the systems are pre-assembled and pre-wired in the headquarters in Austria. The complete systems are fully tested and approved according to European standards.

After shipping the pre-wired components can be installed very quickly. Small systems usually can go into operation within a couple of days.

Testing



Each system is tested at ECOTHERM before delivery. This includes Material tests, NDT tests, completeness of components, function tests, electrical tests, right packaging tests.

Transport

ECOTHERM transport its products worldwide by ship, plane, train and lorry. The main transportation goes to the Middle East (e g. Dubai, Kuwait, Doha). At peak times ECOTHERM get six containers per day. The systems and components get carried all over the world.



Installation, Supervision and Commissioning



ECOTHERM is offering turnkey hot water steam and solar systems which means that several services are provided by ECOTHERM during the whole project. This services are planning, consulting, correct sizing of all components during design stage manufacturing of the major components as well as the piping, preassembling in the factory pre wiring and electrical testing, transport logistics and duties site supervision during all site works, commissioning of the whole plant and handover to the contractor and aftersales and spare part supply.

The main benefit for the customer is that durring the whole project they have to coordinate only with one reliable partner.

Training



The aim of the ECOTHERM Academy is the strategically planned training of all employees and partners. The ECOTHERM Academy systematically identifies the needs and wishes of all participants for trainings and seminars. The ECOTHERM International Support Centre in Dubai plays a central role in the implementation of the trainings on an international level. The basis for the training courses is a library of so-called

"ECOCELLS". These presentations or videos cover all important issues that have to be trained.

- Ecotherm offers training programs with experienced professionals.
- With the correct operation and maintenance of the plant parts producers can create cost savings.
- Our modular training program offers the right training module for almost any application and every level of

knowledge.

• The coach of the ECOTHERM academy create you on request an individual, tailored to your needs training concept.

We train from practice for practice and offer training and seminars on the following topics:

- Operator training for the different plant parts
- Maintenance and Service training
 Security training

Trainings via virtual reality are in progress.

Documentation

A very important part of the project is the good documentation of all system components, including software and wiring diagrams.

Only through a complete documentation, a correct commissioning, perfect spare parts organization and an exact repair or maintenance procedure of the system is given.

After finishing the order ECOTHERM provides the documentation in hard and soft copy for the customer.



Maintenance and Parts Warranty



ECOTHERM resume the aftercare operation of the system as well as the delivery of spare parts for the customer as agreed in the contract.

Many systems which have been working proper for more than 15 years are the best examples for ECOTHERM's perfection. In order to guarantee a smooth operation, our customers exploit the ECOTHERM annual serviceand maintenance contract

Control Panels and Visualization



Description

The ECOTHERM control panels are all-in-one panels. They unify control and HMI in one compact unit. In the control cabinet, space is saved and the amount of wiring is reduced. Different processor variations and display sizes open a diversity of configuration possibilities. The user therefore acquires economic automation hardware. Decentralized solutions are simple to implement through the integrated interface.

The software also follows the integration concept and simplifies programming. The TFT color display with touch screen provides high operating comfort for visualization.



Alerts

Save Respond courteously to disruptions.

Define your own messages which you receive via email or SMS. Determine who gets which message at which time.

Visualization by means of virtual reality is practicable. Control panels are individually and project-specific manufactured by ECOTHERM.

Master Control Panel

The purpose of the master control panel is to organize the equipment of the whole boiler plan room. Each component with need of electrical supply is connected to this control panel and its actual operation mode is shown on a visual 2D/3D mimic diagram.

The microprocessor control with remote control APP offers the optional possibility of remote control or remote maintenance and visualization option.

This ensures with professional support that the system works trouble-free and economically.

Data logging

see the quality of your assets and record all the data. The detailed data recording allows an accurate evaluation of the data over years.

Central administration

Save unnecessary travel costs and manage your plants centrally via the Internet. Due to the unique solution no network settings are necessary.

Safety

Backup of the system and configuration, user management with different rights and a multi-encrypted connection to the multi-server ensures safety.

Interfaces for BMS

There exist several interfaces with existing BMS (building management systems) in order to share and/or transfer process data: RS232, KNX, Bacnet, Modbus, MBus, CAN bus, ETHERNET, Enocean and a USB port at the front side of the control panel.

Any bus protocols can also be integrated via RS232 and RS485.



Further Advantages

ECOTHERM Turnkey solutions offer premium service and high quality products with several advantages:

- All components from one supplier only one guarantee partner • Premium quality
- Possibility of telemaintenance
- Know how
- Certified & approved production facility
- Experience



All components from one supplier



According to the project specifications, the ECOTHERM engineerings choose the suitable products for your individual solution. All components are perfectly coordinated with each other. This ensures the maximum efficiency of the system and therefore the maximum return on investment of your money.

Premium quality

For the manufacturing of ECOTHERM products primarily high-quality stainless steel is used. The quality of the material is one of the most important parameters for a premium product.But premium quality ECOTHERM also refers to the quality of planning, the quality of the production and quality in project management. The self-developed quality management system according to ISO 9001: 2008 and the continuous training of the employees ensures the consistently high quality.



Possibility of telemaintenance



Possibility of telemaintenance and visualization for checking the functional efficiency and cost effectiveness.

- Remote over PC
- Convenience
- Coupling to BMS also possible
- User-interface is adapted to customer requirements

Know-How



ECOTHERM is a family owned company with a clear vision. The goal is to become the leading brand for solar, hot water and steam systems in defined "core markets". Furthermore there exists a clear strategy how this vision will become true. Following this strategy ECOTHERM focusses very precisely on its core business. Employees are trained in the ECOTHERM Academy, which takes into consideration the main strategic goals within the next three years. This know-how is organized in a self-developed knowledge management system to ensure that

all ECOTHERM em-

ployees have the same knowhow. Additionally more than half of the employees at the ECOTHERM headquarters in Austria have already been working for the company for more than five years. All this results in experienced engineers who design your individual steam system with a high efficiency, a compact design, a maximum performance and a save and stable operation.



TÜV

Certified production

The quality management system of ECOTHERM for the production of hot water, steam and solar systems is certified according to ISO 9001 : 2015. The welding procedures are certified to ISO 3834-2, AD 2000 HP0, EN1090 and ÖNORM 7812. Welding procedure qualifications, qualified and certified personnel (welding foreman, International Welding Engineer etc.) and TÜV-certified welders are the basis for the highest quality in manufacturing.

Tanks for industrial applications can be tested upon request by the TÜV.

The in-house test lab is certified to SVGW. The entire production operates in accordance with an environmental management system following ISO 14001.



Experience



As a result of our more than thousand installations in Europe, the Middle East, Asia, North Africa and in Central America in the last decade, ECO-THERM has become one of the technology and innovation leaders on the market for hot water, steam and solar systems. The employees have long service records with the company and continuously refresh their know-how through the training and seminars at the ECOTHERM Academy.

Selected References

With 1000 references from Mexico to China in the most important buildings all over the world ECO-THERM is one of the leading brand for hot water, steam and solar systems.

The international alignment of ECOTHERM with branches in Dubai, Kuwait, Mexico, Hungary, India and partners in more than 20 countries is the basis for our flexible and efficient project implementation that is always on schedule.

The references in this brochure are from a variety of different primary energy sources.

More references in the ECOTHERM brochure or online at www.ecotherm.com



Sheikh Jaber Al-Ahmad Al-Jaber Al-Sabah Hospital - Kuwait ECOTHERM - Turnkey Steam, Clean Steam & Hot Water System



The building

After a 5-year construction period, the Sheikh Jaber Al-Ahmad Al-Jaber Al-Sabah Hospital will be the largest health center in Kuwait. Equipped with 1,168 beds, the hospital additionally includes 36 operating rooms for patients of all classes. It has four cardiology laboratories, four MRI laboratories, four CT laboratories on 13 floors and is one of the largest trauma centers in the Middle East.

ECOTHERM Installations (2011) Turnkey Steam System with 12 m³ Feed Water Tank 3x Steam Boilers, each 7,000 kg/h 3x Clean Steam Generators, each 4,500 kg/h 5x Hot Water Boilers, each 6,000 kW 31x High Capacity Water Heaters (Total Capacity: 6,920 kW) 15x Drinking Water Cooler Stations Installation, Supervision, Commissioning



King Saud bin Abdulaziz University for Health Sciences - Riyadh ECOTHERM - Turnkey Steam, Clean Steam & Hot Water System



The building

Both, a hospital and a research center, are located inside the King Saud bin Abdulaziz University for Health Science. The hospital is specialized in treatment for children. That makes it the first hospital of its kind in Saudi Arabia, with a complete floor space of 85,000 m². The building has 350 beds which makes concentrated pediatric medical care possible. Each hospital ward has its own classrooms, play rooms, storage areas and other support services.

ECOTHERM Installations (2011) 5x Steam Boilers (6,820 kg/h, 12 bar) 1x Feed Storage Water Tank (25,300 litres) 4x Clean Steam Generator (3,550 kg/h at 10 bar) 11x High-Performance Stainless Steel Instantaneous Water Heaters



Grosvenor House Hotel - Dubai ECOTHERM - Turnkey Hot Water System



The building

With its two iconic 48-storey towers, the Grosvenor House is a landmark of unrivaled luxury complemented by breathtaking panoramic views of both the Arabian Gulf and the Dubai Marina. Both hotels have a height of 210 meters and are named after the Grosvenor House in London. The first hotel on Dubai Marina offers 744 sophisticated rooms, suites and apartments as well as 14 restaurants and 7 meeting rooms - setting new standards in hospitality. The construction of the building began in 2003 and was completed and officially opened in 2005. The second tower was completed in 2011 and has a total space of 113,110 m².

ECOTHERM Installations Grosvenor House I (2004) 4x EHRE - High Capacity Water Heaters 750 kW 2000 litres 2x M3 1900 kW hot water boiler with burner

ECOTHERM Installations Grosvenor House II (2010) 2x EHRE - High Capacity Water Heaters 1000 kW 2000 litres 2x C2 1200 kW hot water boiler with burner

ECOTHERM Installations Grosvenor House II (2017) Air Cooled Liquid Chiller 275 kW 2x Water Cooler 275 kW & 170 kW



Sheraton Hotel & Towers - Hong Kong

ECOTHERM Turnkey Steam & Hot Water System









The building

The Sheraton Hotel is located along the Victoria Harbour in Hong Kong. It comprises of 782 guest rooms as well as several spas, saunas and health clubs with professional instructors. In addition to that it offers various ballrooms, meeting spaces, restaurants, lounges, cafes and bars and a swimming pool on the rooftop with a view of the Victoria Harbour.

Ecotherm replaced the entire steam & hot water system during full operation of the hotel through a door of only 1.2 meters, without interrupting hot water & steam supply to guest rooms, kitchen and laundry.

Savings:

Reduction of hot water storage volume from total 150.000 litres to only 8.000 litres Space saving appr. 200 m² Energy saving appr. 25 %

ECOTHERM Installations (2008)

4x Electric Hot Water Systems 800 kW, 2,500 litres 2x Electric steam boilers, each 1,800 kg/h 10 bar 4x Heat Pumps 350 kW



Royalton White Sands Hotel - Jamaica Hot Water / Boiler Package U3 + HE



Hotel Emporio Cancun - Mexico Hot Water System & Pool Heating



Beau-Rivage Palace - Lausanne, Switzerland High Capacity Water Heaters



Marriott Hotel Jeddah - Saudi Arabia Electric Water Heaters



Resort Royal Islander - Cancun, Mexico Hot Water System & Pool Heating



Pelican Resort Club - Netherlands Antilles Hot Water System



Sheraton Hotel - Kuwait Electric Water Heaters



Four Seasons Burj Al Shaya - Kuwait Steam System



InterContinental Resort - Mauritius Hot Water System



Mövenpick Hotel Qassim - Saudi Arabia Electric Water Heaters



Grand Hotel - Kitzbühel, Austria High Capacity Water Heaters



Hotel Ibis - Guadalajara, Mexico Hot Water System & Space Heating



Philosophy

Our Mission

ECOTHERM amazes its customers with individual solutions for hot water, steam and solar systems.

Our Vision

ECOTHERM is the leading brand for individual hot water, steam & solar solutions for hotels, hospitals and industry in Europe, Middle East, Asia, North Africa and Central America.

Our Values

Quality Experience Innovation Individuality Sustainability Partnership

ECOTHERM Individual Heat Transfer Solutions

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